

Week 3 - Lab 1: Analysis, Forecasting, Sorting and Filtering

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CPSC 203 - T16

Winter 2009



Overview

- In this tutorial, we will practice:
 - Analysis and Forecasting
 - Sorting
 - Filtering

Analysis and Forecasting

- In this section, we will use the Excel skills we learned in the previous tutorials to do some analysis on data and to forecast future changes of data.
- For Analysis: use Summary calculations and explain models.

Analysis and Forecasting – Example

- Goal1: perform a **compound interest calculation**.
- A compound interest is the amount of money earned on a deposit during a period of time.
- Equation: It can be calculated using the following formula:
 $P = C (1 + r/n)^{nt}$
 - P = future value
 - C = initial deposit
 - r = interest rate (expressed as a fraction e.g. 0.06 = 6%)
 - n = # of times per year interest is compounded
 - t = number of years invested.

Analysis and Forecasting – Example

- Design the Excel sheet such that it is **easy to read and make modifications**.
- Divide it into sections:
 - Equation/Formula
 - Legend
 - Parameters
 - Variables and Results

Analysis and Forecasting – Example

Compound Interest Equation				
Formula: $P = C(1 + r/n)^{(nt)}$				
Legend				
P = Future value				
C= initial deposit				
r = interest rate (expressed as a fraction: eg. 0.06)				
n = # of times per year interest is compounded				
t = number of years invested				

Years Invested (t):	1
Initial Deposit (C):	\$ 10,000.00
Interest Rate (r):	6%

Note the cell formats depending on the type of data.

Analysis and Forecasting – Example

Demonstrations of Various Compounding

Compounded(n)		Final Principal (P)	
1	(Yearly)	\$	10,600.00
2	(Semi-Annually)	\$	10,609.00
4	(Quarterly)	\$	10,613.64
12	(Monthly)	\$	10,616.78
52	(Weekly)	\$	10,618.00
365	(Daily)	\$	10,618.31

Analysis and Forecasting – Example

fx $=\$B\$13*(1+(\$B\$14/A20))^{(A20*\$B\$12)}$

11
12
13
14

Years Invested (t):	1
Initial Deposit (C):	\$ 10,000.00
Interest Rate (r):	6%

Compounded(n)		Final Principal (P)
1	(Yearly)	\$ 10,600.00
2	(Semi-Annually)	\$ 10,609.00
4	(Quarterly)	\$ 10,613.64
12	(Monthly)	\$ 10,616.78
52	(Weekly)	\$ 10,618.00
365	(Daily)	\$ 10,618.31

Analysis and Forecasting – Example

- Goal2: perform a Continuous Compounding Interest calculation.
- Equation: $P = C e^{(rt)}$
 - e = mathematical constant (EXP(1))
 - P = future value
 - C = initial deposit
 - r = interest rate (expressed as a fraction e.g. 0.06 = 6%)
 - t = number of years invested.

Analysis and Forecasting – Example

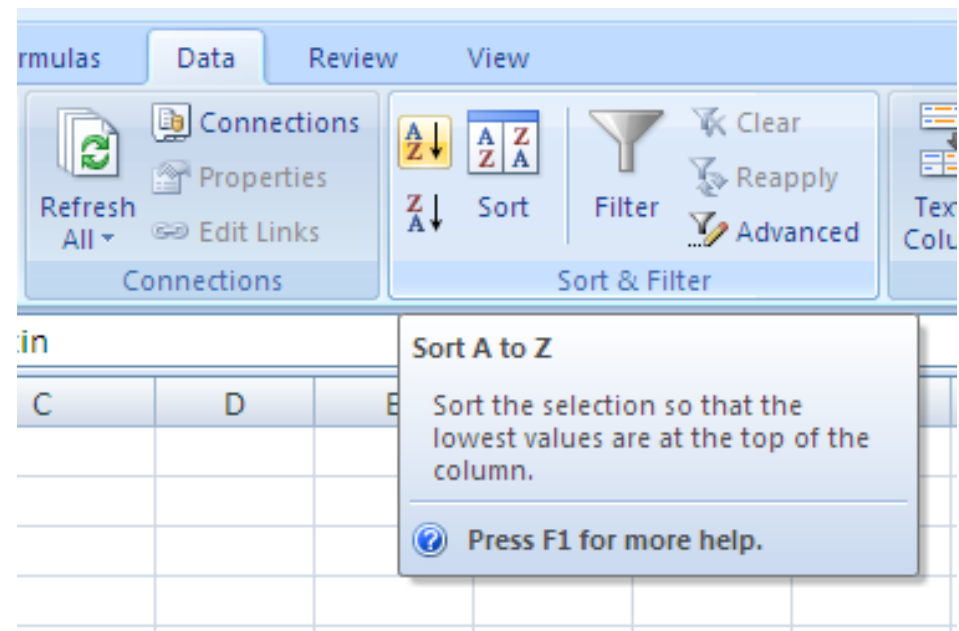
Demonstration of Continuous Compounding			
Formula: $P = C e^{(rt)}$			
Legend			
e = Mathematical Constant (e = 2.71828 18284 59045 23536...)			
Compounded(n)	Final Principal (P)		
Continuous	=B\$13*EXP(1)^(B\$14)		

Sorting

- In Excel you can sort textual and numerical data.

A2	
A	
1	Employee Name
2	Martin
3	John
4	Jessica
5	Jamie
6	David
7	Dane
8	Andrew
9	Alice
10	Albert
11	

A1	
A	
1	Employee Name
2	Albert
3	Alice
4	Andrew
5	Dane
6	David
7	Jamie
8	Jessica
9	John
10	Martin
11	



Sorting

	A
1	Salaries
2	300
3	200
4	400
5	120
6	600
7	430
8	80
9	60
10	90
11	



	A
1	Salaries
2	60
3	80
4	90
5	120
6	200
7	300
8	400
9	430
10	600
11	

Sort [?] [X]

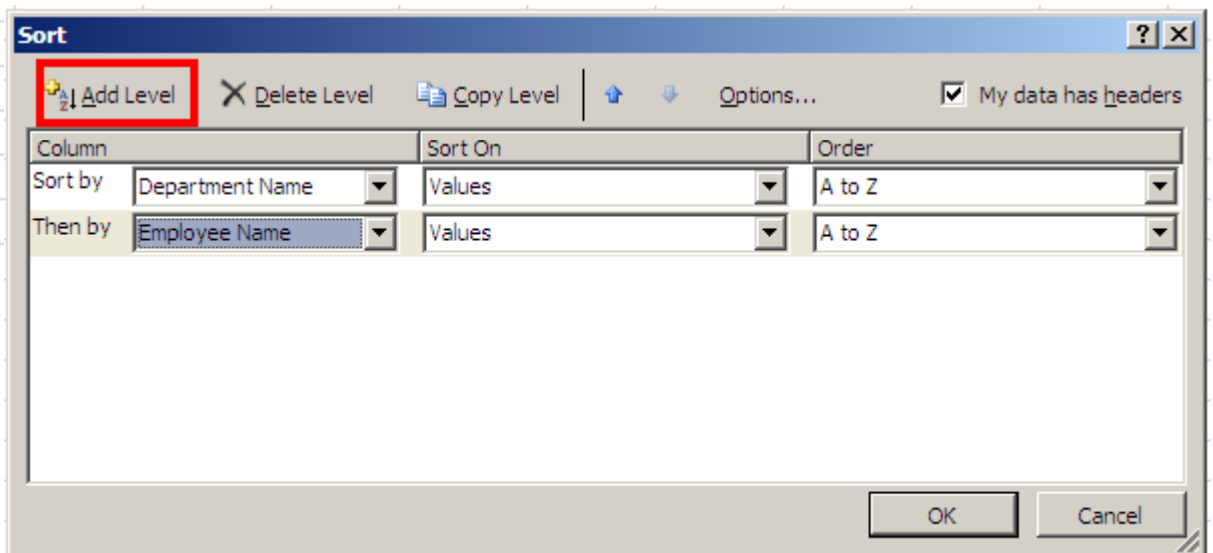
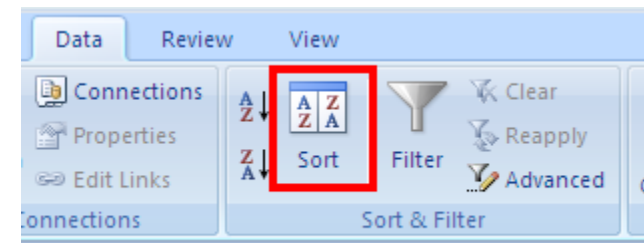
Add Level Delete Level Copy Level | Options... ☒ My data has headers

Column	Sort On	Order
Sort by	Salaries	Values
		Smallest to Largest

OK Cancel

Sorting

	A	B
1	Department Name	Employee Name
2	Finance	Mark
3	Sales	Jessica
4	Human Resources	Martin
5	Finance	Albert
6	Customer Services	Dane
7	Finance	David
8	Customer Services	Andrew
9	Sales	Jamie
10	Finance	John
11	Customer Services	Jonathan
12		

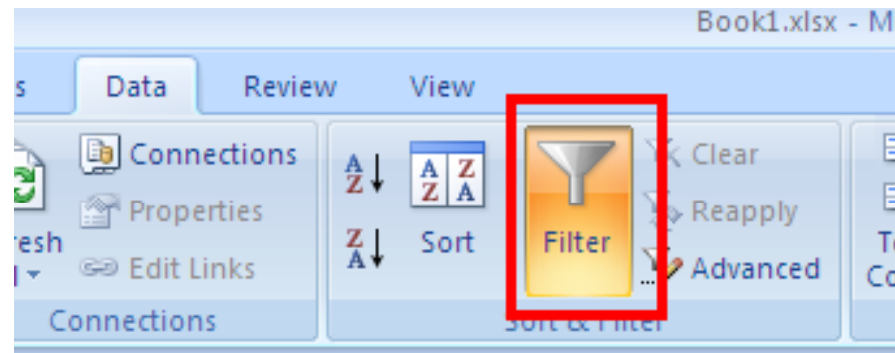
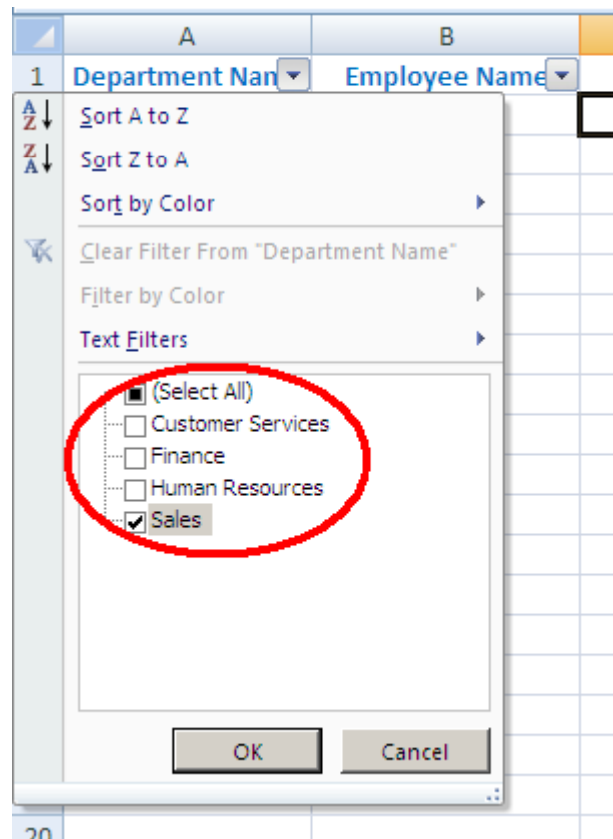


↓

	A	B
1	Department Name	Employee Name
2	Customer Services	Andrew
3	Customer Services	Dane
4	Customer Services	Jonathan
5	Finance	Albert
6	Finance	David
7	Finance	John
8	Finance	Mark
9	Human Resources	Martin
10	Sales	Jamie
11	Sales	Jessica

Filtering

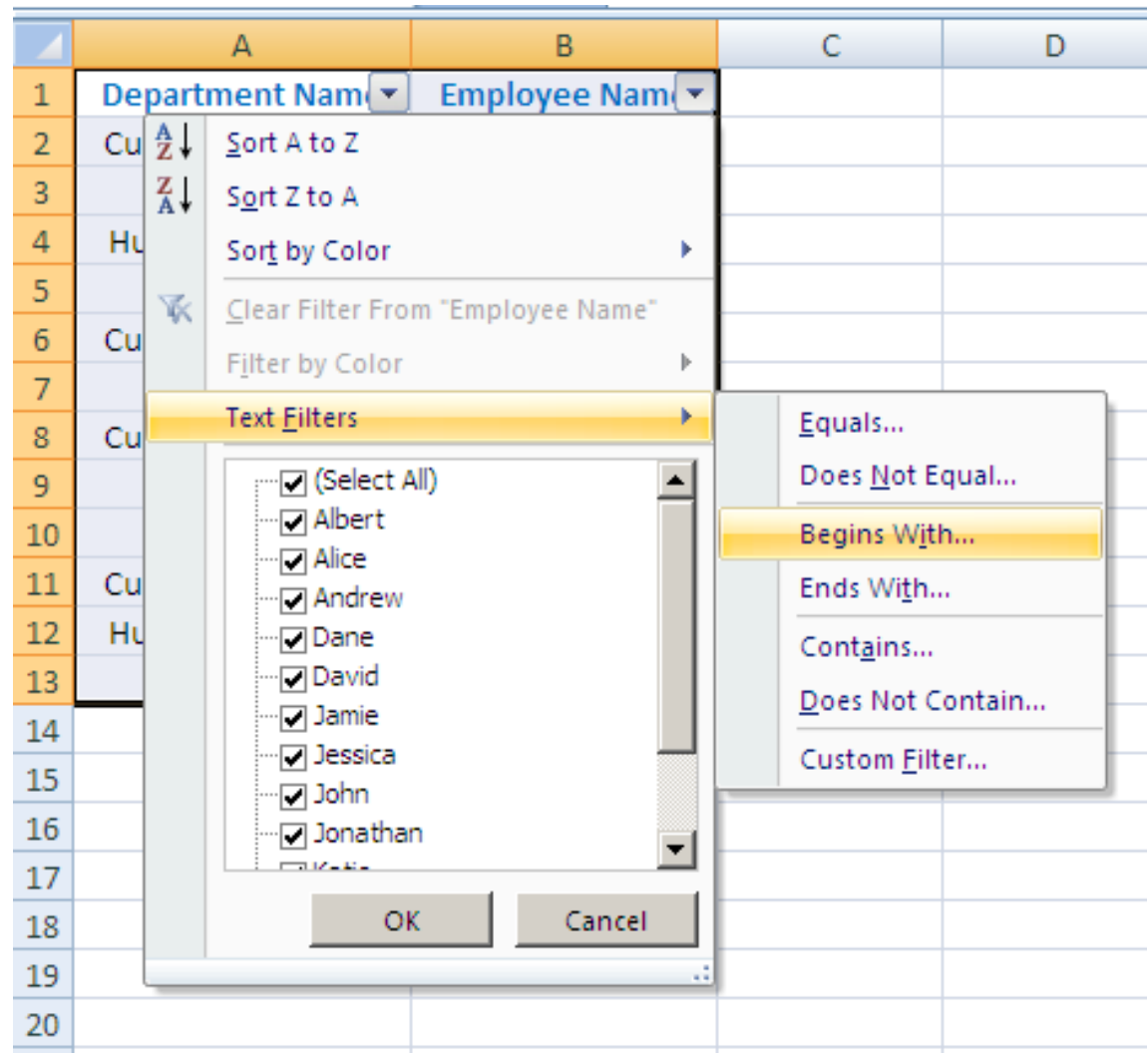
- Used to display part of the data according to some criteria.



	A	B
1	Department Name	Employee Name
10	Sales	Jamie
11	Sales	Jessica
12		

Customized Filters

- To display only the names of employees that start with an "A"



Customized Filters

	A	B
1	Department Name	Employee Name
2	Customer Services	Andrew
3	Customer Services	Dane
4	Customer Services	Jonathan
5	Finance	Albert
6	Finance	David
7	Finance	John
8	Finance	Mark
9	Human Resources	Martin
10	Sales	Jamie
11	Sales	Jessica
12		

Custom AutoFilter [?] [X]

Show rows where:

Employee Name

begins with [A]

☒ And ☐ Or

[] []

Use ? to represent any single character
Use * to represent any series of characters

OK Cancel

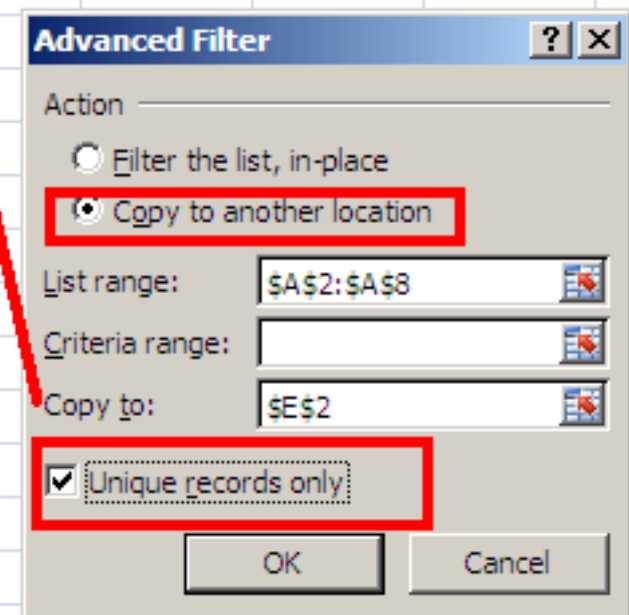
G19 fx

	A	B
1	Department Name	Employee Name
2	Customer Services	Andrew
5	Finance	Albert
12		

Filtering for Unique Values

	A	B
1	Department Name	Employee Name
2	Finance	Mark
3	Sales	Jessica
4	Human Resources	Martin
5	Customer Services	Dane
6	Customer Services	Andrew
7	Sales	Jamie
8	Customer Services	Jonathan

Unique Departments Names



The Advanced Filter dialog box is shown with the following settings:

- Action:** ☒ Copy to another location
- List range:** \$A\$2:\$A\$8
- Criteria range:** (empty)
- Copy to:** \$E\$2
- ☒ Unique records only

Buttons: OK, Cancel

Filtering for Unique Values

	A	B	C	D	E
1	Department Name	Employee Name			Unique Departments Names
2	Finance	Mark			Finance
3	Sales	Jessica			Sales
4	Human Resources	Martin			Human Resources
5	Customer Services	Dane			Customer Services
6	Customer Services	Andrew			
7	Sales	Jamie			
8	Customer Services	Jonathan			
9					

Next: Review

- Next Tutorial is a review session
- Practice and be prepared to ask questions.